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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/465,690

12/17/1999

PAUL H. LEAMON

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05/31/2005

LAW OFFICE OF DAVID H. JUDSON
15950 DALLAS PARKWAY
SUITE 225
DALLAS, TX 75248

EXAMINER

BOYCE, ANDRE D

ART UNIT

PAPER NUMBER

3623

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/465,690

Applicant(s)

LEAMON ET AL.

Examiner

Andre Boyce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-9 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 is/are allowed.
- 6) ☒ Claim(s) 1,4-9,13-18 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 18, 2005 has been entered.
2. Claims 1, 4-6, and 13-18 have been amended. Claims 3 and 12 have been canceled. Claim 20 has been added. Claims 1, 4-9, and 13-20 are pending.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
4. Claims 1, 4-9, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and
- (2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature,

natural phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful arts" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter.

For a process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts. In the present case the independent claims 1 and 19 include "wherein one or more of the steps are performed by one or more electronic processing devices." However, the "determining preferences..." and "assigning an order of importance..." steps simply involve entering and storing information. Therefore, there would only be a nominal recitation of technology, assuming that one or both of these steps are the only ones performed by the electronic processing devices.

Additionally, for a claimed invention to be statutory, the claimed invention must produce a useful, concrete, and tangible result. In the present case the claimed invention assigns an agent to a schedule, thereby producing a useful, concrete, and tangible result, but not within the technological arts as explained above.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 1, 4-9, 13-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castonguay et al (USPN 5,911,134), in view of Crockett et al (USPN 6,044,355), in further view of Gabriner et al (USPN 5,848,403).

As per claim 1, Castonguay et al disclose a method for assigning a group of agents to a plurality of available schedules (see column 17, lines 65-67), comprising the steps of determining preferences for a plurality of factors for each agent (see column 18, lines 9-11), assigning an order of importance for the plurality of factors for each employee (see column 18, lines 14-18), wherein the order of importance for the plurality of factors for a given agent in the group of agents differs from an order of importance for the plurality of factors for at least one other agent in the group of agents (i.e., preferences, meaning per-agent desires for particular kinds of work schedules; column 18, lines 9-11), determining a ranking for each agent from highest to lowest based on given criteria (seniority of the agent, column 3, lines 35-36 and precedence rules for deciding which agents work when staff supply exceeds the need, column 18, lines 12-13), and determining a difference value for each factor between a current schedule and the agent's preference for that factor (i.e., match between assigned tours and preferences, see column 19, lines 12-16). The match being positive or negative (e.g., Does it match the agent's preference?, yes or no), constitutes a difference value between the preference and the schedule.

Castonguay et al also discloses one or more steps performed by an electronic processing device (see figure 4).

Castonguay et al does not explicitly disclose performing the sub-steps on an iterative basis, from a highest ranked agent to a lowest ranked agent, the sub-steps being assigning the difference value for each factor to a bit range within a vector for the current agent and current schedule.

Crockett et al discloses a net staff array and skills availability array used to plan and schedule workforce personnel (column 4, lines 55-58), including performing a feedback technique designed to drive the method toward an optimum schedule after a plurality of iterations (i.e., iterative basis, column 7, lines 34-41). Further, Crockett et al disclose assigning the difference value for each factor to a bit range within a vector for the current agent and current schedule (i.e., the arrays may contain difference values, indicating for example staff and skill level needed to cover a particular distribution of calls, column 5, lines 47-56), wherein further refinement of the skill array, including agent preferences (column 8, lines 41-47). In addition, Castonguay et al disclose modification of other structures or systems used to carry out the same purpose, as seen in Crockett et al (column 20, lines 50-53)

Neither Castonguay nor Crockett disclose an assigned order of importance an ordered bit range within the vector, and wherein the vector represents a numerical value that indicates how well the current schedule fits the current agent's preferences, and assigning to the current agent the schedule having the lowest numerical value. Gabriner et al discloses soft constraints (i.e., preferences) considered in producing schedules. Resource bit array 30 includes an ordered set of bits, wherein a predetermined index (i.e., difference value assignment) indicates a

resource capability (i.e., numerical value indicating fitness, see column 7, lines 40-45). Castonguay, Crockett, and Gabriner are all concerned with effective agent scheduling, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include assigning the difference value for each factor to a bit range within a vector for the current agent and current schedule wherein the factor having a highest importance is assigned to a highest order bits of the vector and remaining factors assigned to subsequent orders of bits in an assigned order of importance, wherein the vector represents a numerical value that indicates how well the current schedule fits the current agent's preferences, in Castonguay et al, as seen in Crockett and Gabriner. By using this vector assignment system the Castonguay et al method would be able to rapidly and effectively evaluate and assign schedules based strictly upon agent preference, just as the Castonguay et al method already implements for tour coverage (see column 18, lines 33-42).

As per claim 4, Castonguay et al disclose agents ranked according to seniority (see column 17, lines 65-67 and column 18, lines 1-3). In order to generate schedules to satisfy agent seniority, the Castonguay et al method inherently has to rank the agents.

As per claim 5, Castonguay et al disclose agents ranked according to performance (see column 16, lines 23-26). The "Results" dataset maintained by the Castonguay et al method, which contains the agent performance statistics, would inherently have the ability to rank the agents.

As per claim 6, Castonguay et al does not explicitly disclose a schedule being assigned from a higher ranked agent to a lower ranked agent only if the assignment will decrease the lower ranked agent's vector without increasing the higher ranked agent's vector. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include this schedule swapping between agents within the Castonguay et al method, since this similar type of schedule swapping, in order to improve the match between assigned tours and agent preferences, is already seen in the Castonguay et al method (see column 19, lines 11-16), thus ensuring that every agent is given the best tour and preferences, without violating any hard constraints, including precedence rules for deciding which agent works (column 18, lines 12-13), thereby improving the effectiveness and accuracy of the overall schedule assignment.

As per claim 7, Castonguay et al disclose the plurality of factors being selected from the group of start times, break times, lunch times, days off, end time, lunch length, split shift parameters, and hours worked (see column 18, lines 14-18).

As per claim 8, Castonguay et al disclose the plurality of schedules being preliminary assigned schedules (see column 18, lines 65-67 and column 19, lines 1-3). Once the initial tour is generated in the Castonguay et al method, the preliminary schedule is complete.

As per claim 9, Castonguay et al disclose the plurality of schedules being a pool of schedules (see column 19, lines 34-35).

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Claims 13-15 are rejected based upon the rejection of claims 4-6, respectively, since they are the computer program product claims, corresponding to the method claims.

Claims 16-18 and 20 are rejected based upon the rejection of claims 7-9 and 1, respectively, since they are the computer program product claims corresponding to the method claims.

Allowable Subject Matter

7. Claim 19 is allowed.

Response to Arguments

8. First, the Examiner notes that the applied reference, Castonguay et al (USPN 5,911,134), has a common assignee and with the instant application. Further, Crockett et al (USPN 6,044,355) has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the references, they constitute prior art only under 35 U.S.C. 102(e). The rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the references was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or

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declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

With respect to claim 1, Applicant argues that Castonguay et al does not teach having an agent determine preferences for a plurality of factors, enabling the agent to assign an order of importance for the factor, or determining a ranking for each agent from highest to lowest based on given criteria. First, it is noted that the claim language *does not* indicate enabling an agent to determine or order preferences, as argued by Applicant. The claim language merely recites “determining” and “assigning.” The claim language does not explicitly indicate that an agent performs the functions. The Examiner respectfully disagrees and submits that Castonguay et al indeed discloses the limitations, including preferences, meaning *per-agent desires* for particular kinds of work schedules (column 18, lines 9-11), and *precedence* rules (i.e., ranking of agents) for deciding which agents work when staff supply exceeds the need (column 18, lines 12-13). Further, the Examiner disagrees with Applicant’s assertion that in Castonguay et al, each agent uses the same fixed order of preferences. The cited passage in Castonguay et al, column 19, lines 11-16, does not indicate that the preferences are in the same fixed order. It simply states that the routine begins a pass through the tours for each type of preference supported,

wherein the method trades tours or breaks among agents to improve the match between tours and agent preferences, without violating any hard constraints or higher-priority preferences, which does not explicitly state or infer that the preferences are in the same fixed order. As such, the preferences may indeed be ordered according to the priority of the agent, wherein the agent may be more concerned with which days are worked over the number of days worked, thus prioritizing the former over the latter.

Applicant also argues that the resource bit array 30, as seen Gabriner et al, cannot be considered analogous to Applicant's recited vector, and that Gabriner et al teach away from the present invention. The Examiner respectfully disagrees. First, the Examiner notes that assigning factors (i.e., entries) in a vector according to ascending bit range is old and well known in the art, as seen in Gabriner et al (i.e., order set of bits within the resource bit array 30). Further, Gabriner et al discloses that the contents of the resource bit array usually don't change. Stated another way, the contents of the resource bit array can indeed change, if for instance, the capabilities of the resource changed. Further, each resource represented in the scheduling system has an associated resource bit array 30 (column 7, lines 45-48), as similarly seen in Applicant's invention, wherein each agent has an associated vector according to the ordered preferences. In addition, the resource bit array 30 indicates a capability of the resource, wherein the capability is equivalent to Applicant's numerical value determining fitness of the schedule.

Lastly, in response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Castonguay et al, Crockett et al, and Gabriner et al are all concerned with effective agent scheduling. Further, Castonguay et al discloses using the embodiments as a basis for modifying or designing structures for carrying out the same purposes (column 20, lines 50-53).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Boyce whose telephone number is (571) 272-6726. The examiner can normally be reached on 9:30-6pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



adb

May 25, 2005



TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600